Reliability Assessment: Extreme Peak with Minimum Local Generation Aliso Canyon Order Instituting Investigation - I.17-02-002

Khaled Abdelaziz, PhD, PE
Natural Gas Modeling Lead
Energy Division
California Public Utilities Commission
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California Public Utilities Commission

Presentation Outline

- Goals
- Summary of Inputs and Assumptions
- Results
- Summary of Findings
- Discussion

Goals of the 1-in-35 Reliability Assessment with Minimum Local Generation

- Workshop 3 presented the results of the 1-in-10 Reliability Assessment where no gas curtailments are allowed.
- The 1-in-35 reliability standard allows for the curtailment of noncore customers, i.e. noncore industrial and commercial, refineries, enhanced oil recovery, and electric generation customers.
  - This is an extreme case. Therefore, staff is investigating the reliability of the natural gas system under a Minimum Local (electric) Generation scenario (MLG), where electric generation in the SoCalGas system is curtailed down to the minimum needed to meet the Local Reliability Criteria, according to FERC rather than full curtailment.

Reliability Assessment: Extreme Peak with Minimum Local Generation

Summary of Inputs and Assumptions

Summary of Inputs and Assumptions
Gas Demand Summary

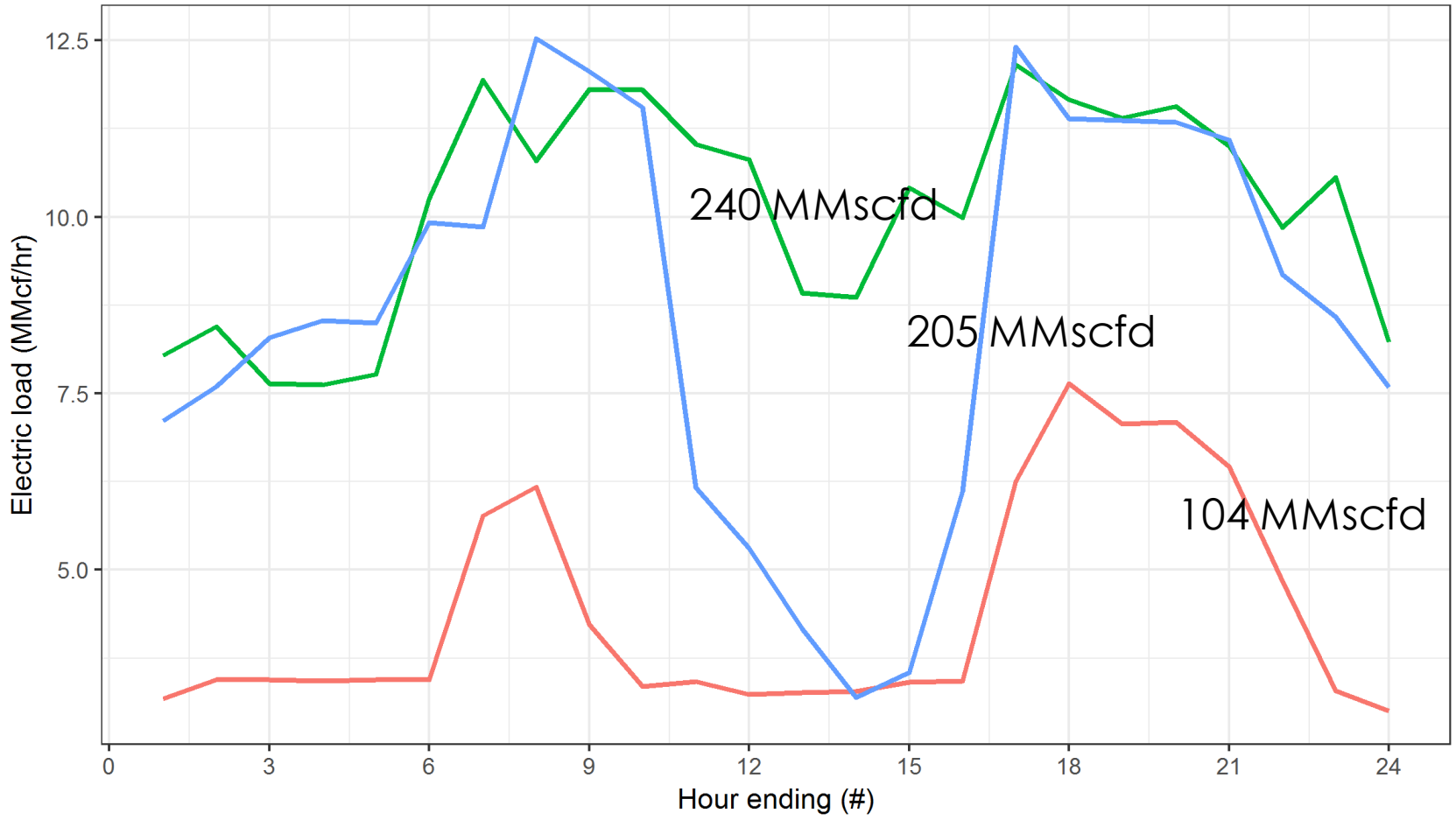
- Summer demand under a minimum Local Generation Scenario is lower than that of a summer high-demand day considered in Workshop 3.
  - These simulations (i.e. S02, S04, and S06) succeeded without Aliso.
- Only the Winter season is considered.

Shown for Comparison

#	Study Year	Minimum Local Generation	SoCalGas Core+	SDG&E Core+	Wholesale Customers	Demand 1-in-35 + MLG	Demand 1-in-10
	Winter	MMscfd	MMscfd	MMscfd	MMscfd	MMscfd	MMscfd
07	2020	104	2,966.3	399.6	119	3,589	4,987
08	2025	240	2,797.6	388.7	123	3,549	4,760
09	2030	205	2,653.0	384.6	127	3,370	4,821

+ Core demand on a 1-in-35 day is 6% higher than on a 1-in-10 day

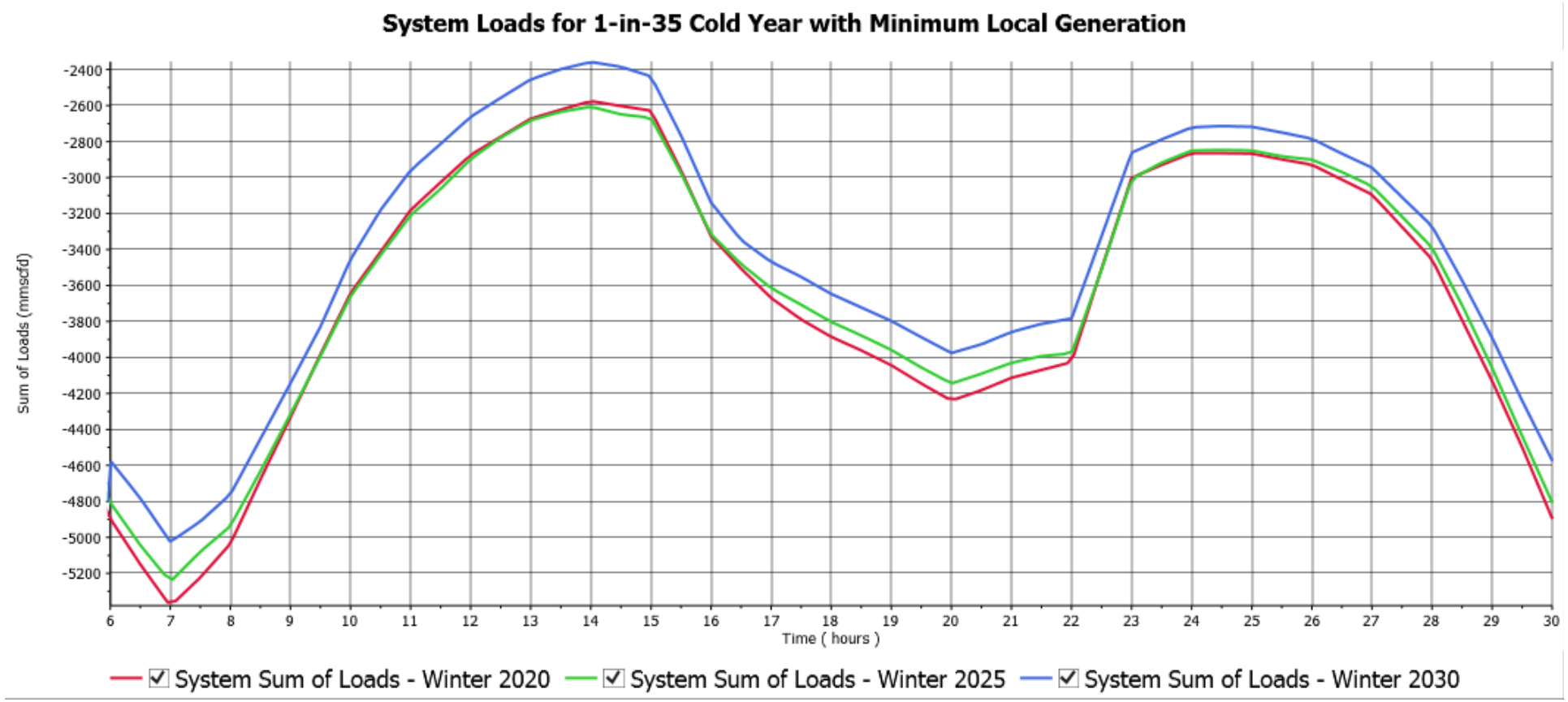
Summary of Inputs and Assumptions
Minimum Local Generation Hourly Load



Winter Season

Source: Production Cost Modeling, Energy Division

Summary of Inputs and Assumptions
Total Load Hourly Profile



Summary of Inputs and Assumptions Supplies, Storage Fields, and Outages

- Inventory level at non-Aliso fields is 90%.
- Maximum withdrawal curves are used.
- Reduced pressures on L3000, L4000, and L235-2

Zone	Nominal Capacity (MMscfd)	Receipt Point Utilization+ (%)	Supplies without Outages (MMscfd)	Supplies with Outages (MMscfd)
Southern	1,210	85%	1,028.5	1,028.5
Northern	1,590	85%	1,351.5	1250.0
Wheeler Ridge	765	100%	765.0	765.0
CA Production			70.0	70.0
Total	3,565	88%	3,215.0	3113.5

+ As introduced in workshop 1, Staff is using RPU to calculate supplies based on the nominal capacity of the zone, as opposed to SoCalGas approach, where RPU is based on the system capacity after a given set of outages has been introduced (and hence lowered the capacity).

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Results

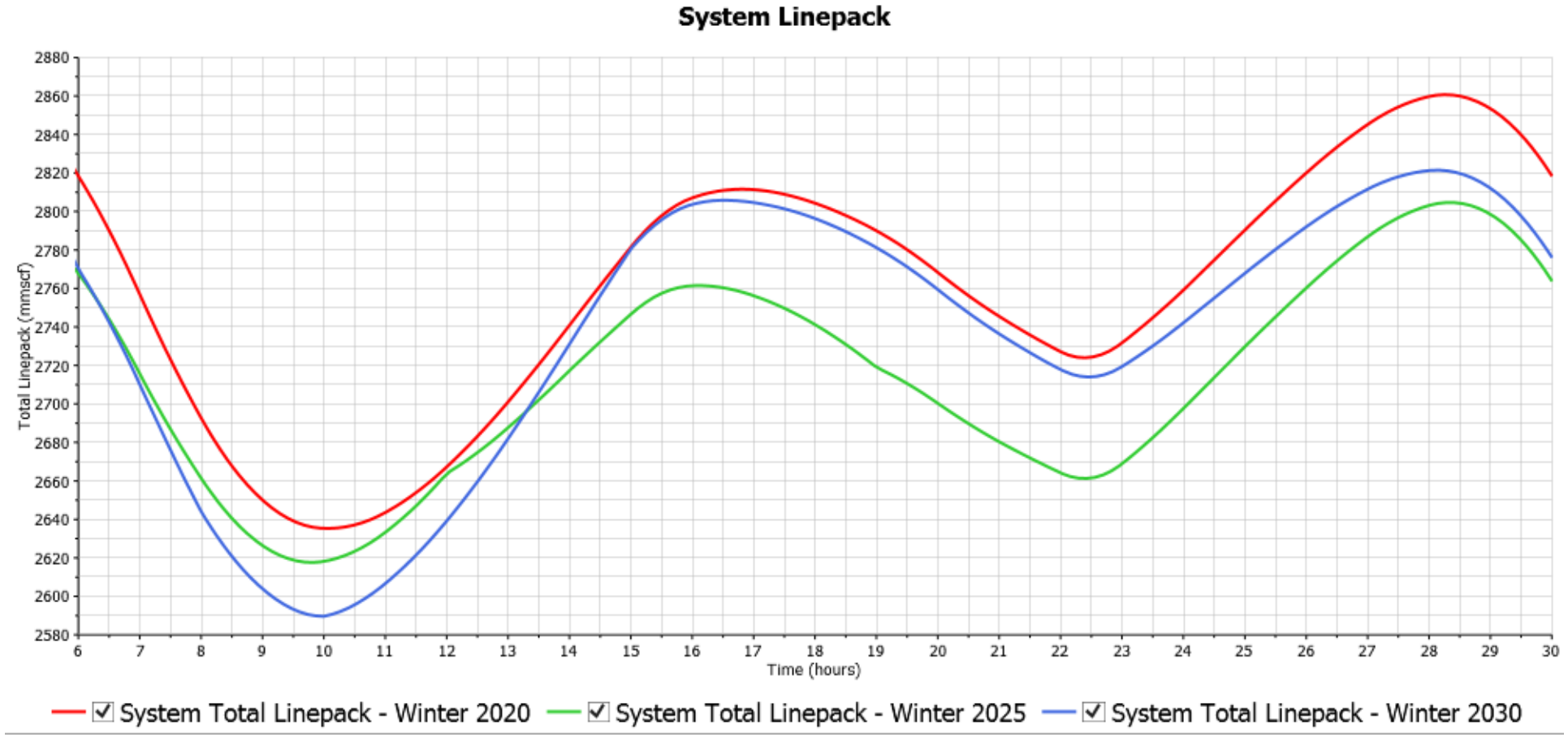
Results Summary

- Pressures were held above Minimum Operating Pressure (MinOP)*
- Pressures were maintained below Maximum Operating Pressure (MOP)
- Linepack was recovered
- Facilities operated within their capacities (Regulators, Compressors, etc.)

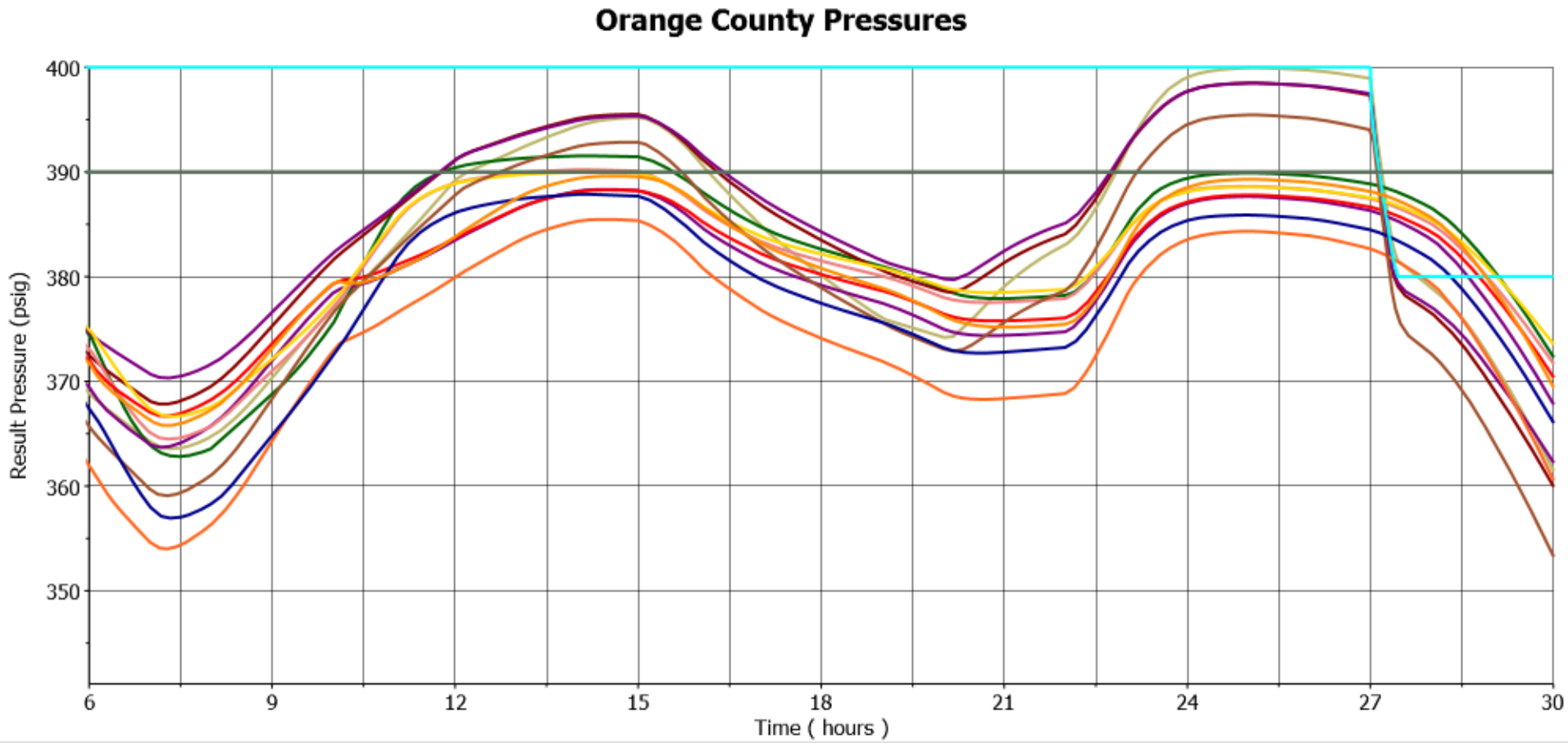
Simulation	Study Year	Total Demand	Status
	Winter	MMscfd	
07	2020	3,589	Successful
08	2025	3,549	Successful
09	2030	3,370	Successful

* Pressures in the San Joaquin Valley dropped below MinOP due to design conditions.

Results
Linepack (3 Simulations)



Results
Orange County Pressures (3 simulations)



Summary of Findings

- The daily demand on a 1-in-35 extreme peak day with minimum local generation is about 70%-75% of the daily demand on a 1-in-10 peak day.
- The 1-in-35 extreme peak with Minimum Local Generation simulations for Winter 2020, 2025, and 2030 were successful without the use of Aliso Canyon Underground Storage Field.
- It follows that the 1-in-35 extreme peak (with noncore curtailments) simulations will also be successful without the use of Aliso.
- Sensitivity on the inventory level of the non-Aliso fields could be performed if needed.

Q&A and Discussion